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MARSDEN BFA-220R USER MANUAL

Medical Scale

TYPE: FM-622-220X
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MARSDEN BFA-220R

INSTRUCTION MANUAL

CE 0120 0071

INTRODUCTION

Marsden BFA-220R with body fat, body water, bone mass and muscle mass, fat mass, fat free mass estimation and BMI function is designed and manufactured in a facility certified to ISO 9001 Quality, ISO 14001 Environment, OHSAS 18001 Health and Safety Management Systems and ISO 13485 Medical Devices Quality Management System.
Note: Read this Instruction Manual carefully and keep it handy for future reference.

NOTES ON SAFETY

Please read this section carefully to familiarize yourself with features and operations before using the unit.

- The warning signs and the sample icons shown here are listed in order for you to use this product safely and correctly as well as to prevent product damage, risk and injury to you and others.
- The icons and meanings are as follows:

⚠ **SAFETY NOTICE**	Indicates the correct conditions in which to use the product in order to prevent damage risk and injury.
⚠ **IMPORTANT NOTICE TO USERS**	Indicates the important notice users should read before using the product.
⚠ **CARE AND MAINTENANCE**	Indicates matters in which the possibility of damage may occur as a result of incorrect handling and improper maintenance.

INTENDED USE

This scale is intended to measure body weight and impedance and estimate percentage of body fat and body water, bone mass and muscle mass using BIA (Bioelectrical Impedance Analysis). It is intended for use by healthy children 10-17 years old and healthy adults with active, moderately active, to inactive lifestyles for body composition assessment.

⚠ SAFETY NOTICE

- Do not use the scale on subjects who have body implants such as pacemaker, artificial limbs, contraceptive devices, metal plates or screws. It may cause the devices to malfunction or produce an inaccurate result. When in doubt, please consult your physician.
- Do not disassemble the scale as incorrect handling may cause injury.

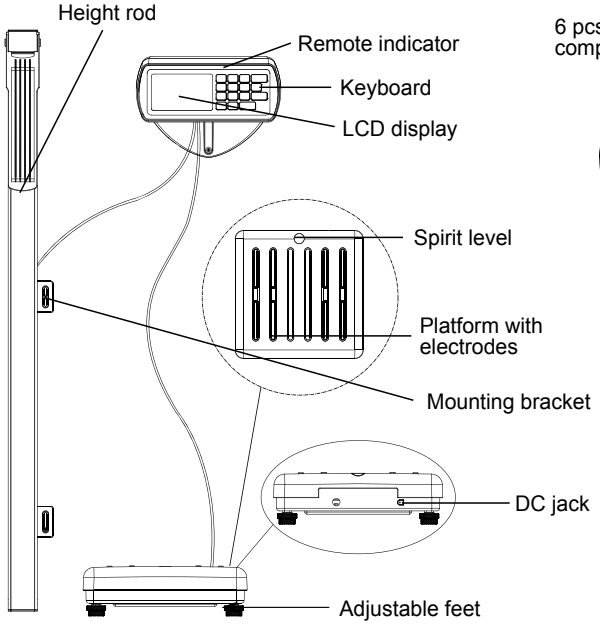
Medical Scale

⚠ IMPORTANT NOTICE TO USERS

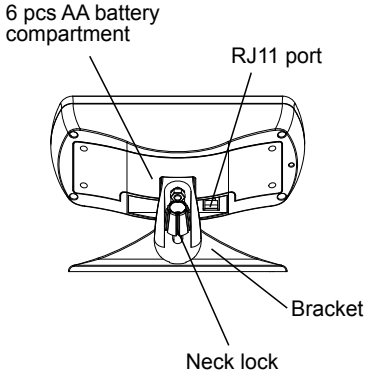
- This product is intended for adults and children (ages 10 to 99).
- Use on a firm and flat surface.
- Use only the type of battery stated or the required adaptor (see Section **"Preparation before use: connect the power or insert the batteries"**).
- To reconnect the power, please wait until the LCD is completely powered off after disconnecting the power.
- Move all weight off the platform before measurement.
- The "Athlete" mode is only applied to age 18 or above.
- Body fat percentage estimates will vary with the amount of water in the body, and can be affected by dehydration or over-hydration due to such factors as alcohol consumption, menstruation, illness, intense exercise, etc.
- Do not use on pregnant women. The result is inaccurate and effects on the fetus are unknown.
- For body fat and body water estimates, always estimate in bare feet.

PRODUCT DESCRIPTION

FRONT VIEW



REMOTE INDICATOR BACK VIEW



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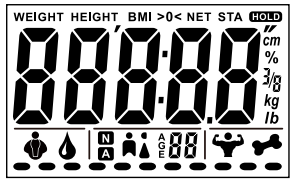
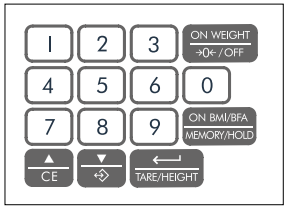
LCD DISPLAY



WEIGHT	Weighing mode	**HEIGHT**	Height measuring mode
BMI	BMI mode	**>0<**	Indicates that the scale is set to zero
NET	Tare function in use	**STA**	Indicates a stable reading
HOLD	Indicates hold of weight value		Body fat & Fat mass icon
	Fat free mass icon		Body water icon
N / A	Normal / Athlete mode		Male / Female icon
	Muscle mass		Bone mass icon
		Body fat & body water indication bar	

KEY DESCRIPTION



Key '0' – '9' - Numeric keys for data entry (ID no., height, age, memory)

ON WEIGHT / →0← / OFF
- ON WEIGHT: Enter weighing mode
- →0← : Obtain the reference zero in weighing
- OFF : Turn off the scale

ON BMI/BFA / MEMORY/HOLD / ▲ / CE
- ON BMI/BFA MEMORY : Select BMI, BFA or Memory mode; Enter into user setting mode
- HOLD : hold/release weight value
- ▲ : Toggle between "on" or "off" in setting mode; Move cursor to left; Increase value of age; toggle between male and female; toggle between normal and athlete mode; select memory location
- **CE** : Clear last entry

▼

- ▼ : Toggle between “on” or “off” in setting mode; Move cursor to right; decrease value of age; toggle between male and female; toggle between normal and athlete mode; select memory location
- : Store settings into memory; replay the last measurement result
- : Confirm button for selection

TARE/HEIGHT

- TARE : Tare function in weighing mode
- HEIGHT : Enter into height measuring mode

ITEMS INCLUDED IN THE PACKAGE

- Base part with platform and adjusting feet & 2m cord with indicator
- 5 pcs plastic wall plugs (2 pcs as spare part)
- 5 pcs M3x25 screws (2 pcs as spare part)
- 1 pc 5x75 crosshead screwdriver
- Instruction Manual
- Assembly Manual

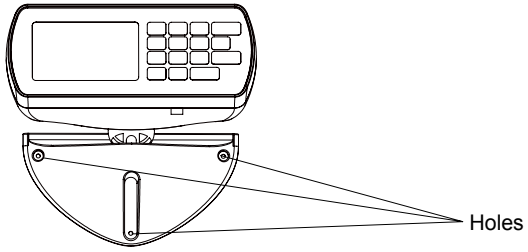
PROCEDURES & INSTRUCTIONS FOR ASSEMBLING REMOTE INDICATOR ON THE WALL

The indicator has a 2m cable to allow it to be placed at a convenient position away from the scale. A multi-function bracket allows the indicator to be wall mounted or sat upon a desk.

⚠ IMPORTANT NOTICE TO USERS!

1. Choose the location to mount the indicator on the wall. The location should be free of temperature extremes and water. It should be where it is within easy reach of the operator.
2. Make sure the structure and mounting hardware are of sufficient strength to support the indicator. The multi-function bracket should be securely fastened to the wall so that it cannot loose from the mounting surface.

1. Use the multi-function bracket as a template and mark the 3 holes on the wall. Remove the bracket and then drill the holes.



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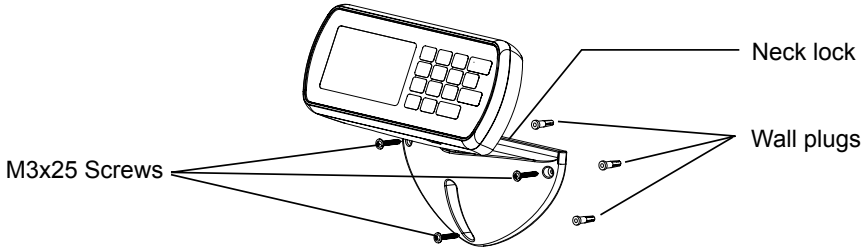
2. Insert three wall plugs into the holes until the wall plugs are flush with the wall. Place the indicator against the wall and insert 3pcs M3x25 screws through the bracket into the wall plugs. Then use neck lock to adjust the angle of the indicator.

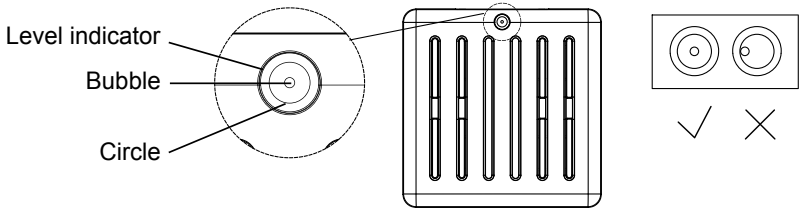


PREPARATION BEFORE USE

1. **Connect the Power or Insert the Batteries**
   Insert 6pcs x 1.5V AA alkaline batteries (included) into the battery compartment located at the back of the indicator, or power up the scale through connecting the AC/DC adaptor (included) with the power socket.

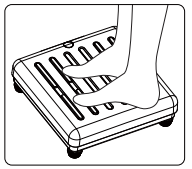
2. **Correct Positionig**
   Use the scale on a flat and hard floor surface.

3. **Setting the level**
   Before you use the scale for the first time or when the scale has been moved to another place, the level of the scale must be set.
   A. Don’t step on the scale and remove all weight from the platform.
   B. Place the scale on hard and flat surface, use the adjustable feet to adjust the spirit level until the bubble inside the level indicator is located in the centre of the circle.



⚠ SAFETY

To avoid injury, do not step on the edge of the platform.



Do not stop on scale unerenly

4. Initial start up of the scale (when moved or batteries replaced)

When the scale is powered up, all digits will be displayed for a few seconds (Fig.1), and then the software version will be shown (Fig.2). Once initialised the scale will power down again and is now ready for use.

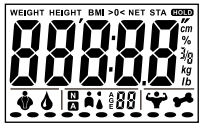


Fig.1

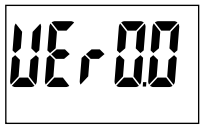
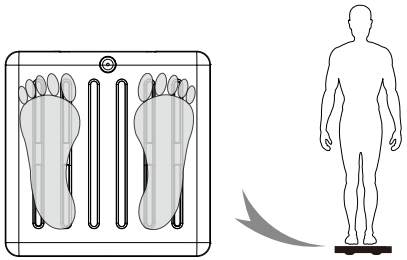


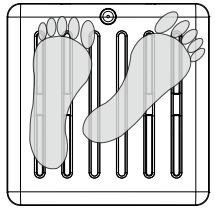
Fig.2

OPERATION

The accuracy of the results depends on how you stand on the scale. Position your feet for maximum contact with the metal electrodes on the platform. This ensures the best contact between your feet and the metal contacts. Stay on the scale until estimation is completed and the result is displayed.



Heels centered on electrodes (√)



Heels not touching the electrode (X)

SETTINGS

1. Identity Number Setting (I.D. No.)

Press and hold **[** ON BMI/BFA / MEMORY/HOLD **]** key for around 10 seconds, all digits (Fig.1) and software version (Fig.2) will be shown on LCD successively. “Id no” with current setting will be toggled on screen (Fig.3). Press [▼] or [▲] to toggle between “on” and “off” and press [↵] to confirm. If select “off”, Id No. will be by-passed in measuring process & memory mode.

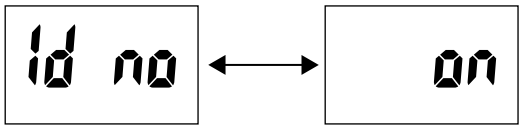


Fig.3

Note: I.D. No.”0000” will be shown in memory recall mode once you return the I.D. setting from “off” to “on”.

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2. Estimation Mode Setting

Users can select their desired estimation mode (Body fat with fat mass and fat free mass estimation (Fig.4a), body water percentage (Fig.4b), muscle mass (Fig.4c) and/or bone mass (Fig.4d)). “bFA” with current setting will be toggled five times (Fig.4a). Press [▼] or [▲] to set “on” to activate or “off” to deactivate the function. Press [↵] to confirm settings.

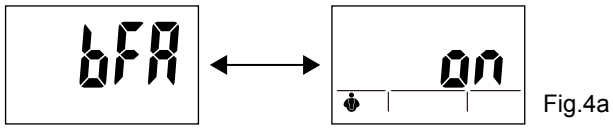

Fig.4a

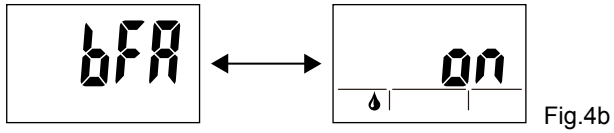

Fig.4b

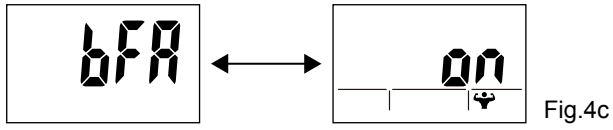

Fig.4c

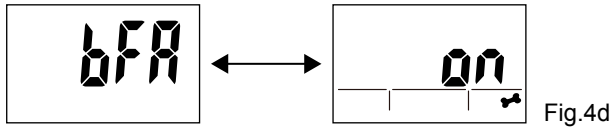

Fig.4d

WEIGHING ONLY OPERATION

1. Press [ON WEIGHT] key, all digits (Fig.1) and software version (Fig.2) will be shown on LCD successively, then "o" will cycle along LCD. (Fig.5)
2. Then “0.0kg" will be displayed on LCD with “weight” indication (Fig.6). If the display shows a positive or negative weight, press [→0←] to reset zero until LCD displays 0.0kg.
3. Step on the scale and stand still while the weight is being measured. “STA” will be shown if the weight is stable. (Fig.7)
4. Then the scale will switch off automatically once it remains idle for 20 seconds.

Fig.5

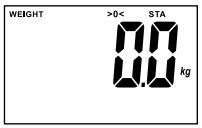

Fig.6

Fig.7

HOLD FUNCTION

In weighing mode, the weight can be held to let user clearly read the information.

Fig.8

1. Follow steps 1-3 in the section of **WEIGHING ONLY OPERATION**.
2. Press **[** HOLD **]** to hold the weight, the weight with hold icon will be shown on screen (Fig.8). If weight is unstable, "hold" iocn will blink.
3. Press **[** HOLD **]** again to release the weight, or it will switch off automatically once it remains idle for 20 seconds.

HEIGHT MEASURING OPERATION (FUNCTION AVAILABLE WITH THE ELECTRONIC HEIGHT ROD ONLY)

1. Press **[HEIGHT]** key to enter into height measuring mode, all digits (Fig.1) and software version (Fig.2) will be shown on LCD successively, then "-" will cycle along the LCD (Fig.9).
2. The default height value (110.0cm) will be displayed with height indication (Fig.10).
   Note: If the screen displays "----" (Fig.11a), push down the height rod until the cursor meets the head of the outer column (Fig.11b).

Fig.9

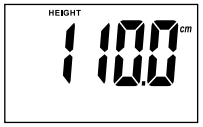

Fig.10

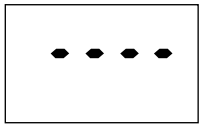
Fig.11a

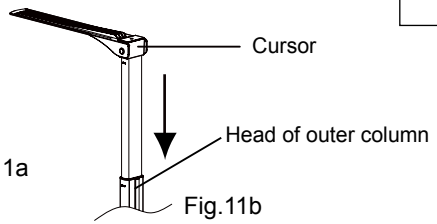

Fig.11b

3. Stand straight towards the height rod. Lift the rod up till the cursor is lying horizontally on your head (Fig.12a), the height will display (Fig.12b).

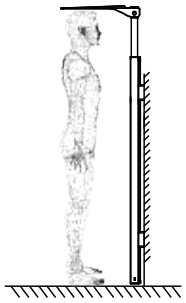
Fig.12a

Fig.12b

4. Push down the rod completely. It will switch off automatically once it remains idle for 20 seconds.

BMI MEASURING OPERATION

⚠ IMPORTANT NOTICE TO USERS

- A few steps must be followed before measuring BMI.
  PROGRAM PERSONAL PARAMETER
  Input the user's height before BMI measurement. Once the information is memorised, it will only need to be re-entered if there is a change to the data.
- Ensure data input for each personal parameter is completed within 20 seconds otherwise the scale will switch off automatically.

1. **Enter Into BMI Mode**
   Press **[** ON BMI/BFA **]** key, all digits (Fig.1) and software version (Fig.2) will be shown on LCD successively, then "bMI" will be displayed on LCD (Fig.13). Press [↵] to confirm entering into BMI mode.

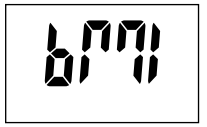

Fig.13

2. "o" will cycle along the LCD (Fig.5). Step on the scale when the screen showing "stEP" (Fig.14).

Fig.14

3. **Set ID No. (Available when I.D. No. set "on")**
   "----" will be shown on LCD (Fig.15). Enter 4 digits by numeric keys and press [↵] to confirm. Or press **[CE]** to input ID No. again.

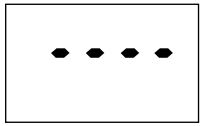
Fig.15

4. **Set BMI Parameter**
   4.1 Set Height
   A. When using the scale equipped with a height rod, the height value will be input from the electronic height rod. Stand on the floor with bare feet, then follow the steps of **HEIGHT MEASURING OPERATION** to measure your height. However, you are still allowed to input your height value manually even when the scale is equipped with height measuring rod. Press **[CE]** and input height by numeric keys.
   B. When using the scale without height rod, you can set the height value manually. Input your 4 digit height using the numeric keys.
5. Press [↵] to confirm your height.
6. **Measuring**
   Step on the scale. Stand still while the weight is measured. "STA" will be shown if the weight is stable (Fig.16).

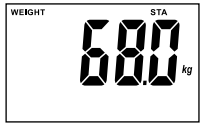

Fig.16

7. The scale will display the results in sequence: Height, Weight, BMI (Fig.17). Each screen will be displayed around 4 seconds, sequentially 3 times. The scale turns off automatically. You can press [▲] or [▼] to toggle forward or backward to view the results.

Fig.17

BODY FAT AND TOTAL BODY WATER ESTIMATING OPERATION

⚠ IMPORTANT NOTICE TO USERS

- A few steps must be followed before estimating body fat and body water
  PROGRAM PERSONAL PARAMETERS
  Input the user's height, age, gender and normal or athlete mode before body fat and body water estimation. Once the information is memorised, it will only need to be re-entered if there is a change to the data.
- Ensure data input for each personal parameter is completed within 20 seconds otherwise the scale will switch off automatically.
- Always estimate your body fat and body water in bare feet.

1. Enter into Body Fat Estimation Mode
Press **[** ON BMI/BFA **]** key, all digits (Fig.1) and software version (Fig.2) will be shown on LCD successively, then "bMI" will be displayed on LCD (Fig.13). Press **[** ON BMI/BFA **]** key again and "bFA" will be displayed on LCD (Fig.18). Press [↵] to confirm, then "o" will cycle along the LCD (Fig.5).

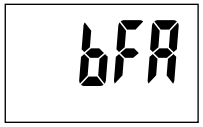

Fig.18

2. Step on the scale with bare feet when the screen showing "stEP" (Fig.14).
3. **Set ID NO. (Available when I.D. No. set "on")**
"----" will be shown on LCD (Fig.19). Enter 4 digits by numeric keys or press **[CE]** to input ID no. again. Press [↵] to confirm.

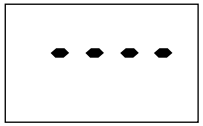

Fig.19

4. **Set Body Fat and Body Water Parameters (BFA Parameters)**
4.1 Set Age
The age display blinks (Fig.20). Press [▲] or [▼] key or numeric keys to adjust the age. Press [↵] to confirm.

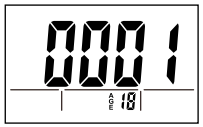

Fig.20

Medical Scale

4.2 Select Gender
The gender icon blinks (Fig.21). Press [▲] or [▼] key to toggle between male and female. Press [↵] to confirm gender.

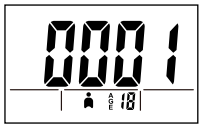

Fig.21

4.3 Select Normal or Athlete Mode
The normal or athlete display blinks (Fig.22). Press [▲] or [▼] key to toggle between normal or athlete. Press [↵] to confirm settings. Athlete mode is only available to those aged 18 or above. For those aged 17 or under, this step is automatically by-passed. (See section: "**Why is the Athlete Mode necessary in a Body Fat Analyser?**").

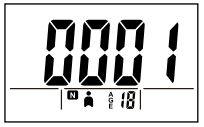

Fig.22

4.4 Set height
A. If the scale is equipped with a height rod, your height will be input from the electronic height rod. Stand on the floor with bare feet, then follow the steps of **HEIGHT MEASURING OPERATION** to measure your height. However, you are still allowed to input your height manually even if the scale is equipped with height measuring rod. Press **[CE]** and input height by numeric keys.
B. If the scale is without height rod, you can set your height manually. Input your 4 digit height by numeric keys.

5. Press [↵] to confirm your height.

6. **Measuring**
Step on the scale and stand still while the weight is being measured. "STA" will be shown if the weight is stable (Fig.23).

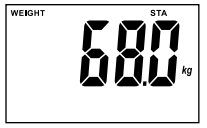

Fig.23

7. Continue to stand on the scale; the screen displays the measurement pattern while computing (Fig.24).

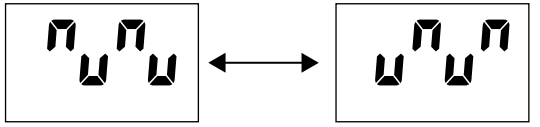

Fig.24

8. The scale will display the results (height, weight, body fat percentage, fat mass, fat free mass, body water percentage, muscle mass and bone mass) in sequence (Fig.25) according to your preference (refer to section: **SETTINGS: Estimation Mode Setting**). Each screen will be displayed around 4 seconds, sequentially 3 times. You can press [▲] or [▼] to toggle forward or backward to view the results. The scale turns off automatically.

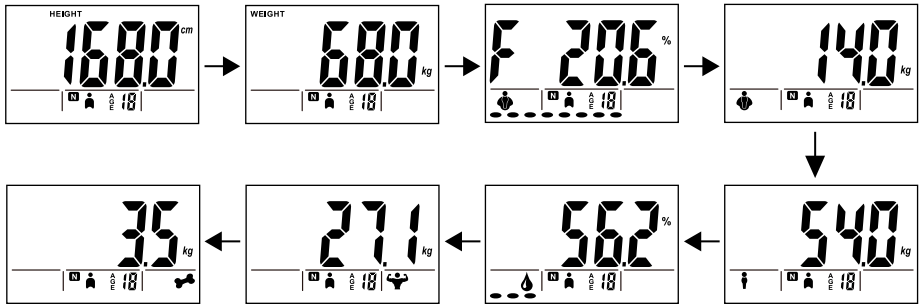

Fig.25

MEASURING BMI WITH USER MEMORY

The scale features 25 personal memory settings. This allows users to store and recall their own settings.

A. To Store Settings into Memory

1. Follow steps 1-4 in the section of **BMI MEASURING OPERATION.**
2. Press and hold [⇔] key for 2 seconds to store up all settings, "M" with last memorised location will blink (Fig.26). Press [▲] / [▼] or numeric keys 0-24 to select the memory location. Press [↵] to confirm memory locations. Or press [**CE**] to cancel and select another memory location again.
3. If the memory is empty, "----" will be displayed (Fig.27). Press [↵] to confirm.

Fig.26

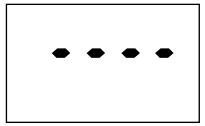

Fig.27

4. If the memory is occupied, "uSEd" will be displayed (Fig.28). Press [↵] to confirm. "CLEAr" will be displayed (Fig.29). Press [↵], the new settings will be memorised and replaced the previous setting.

Fig.28

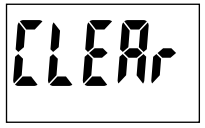

Fig.29

5. Follow steps 6-7 in the section of **BMI MEASURING OPERATION.**

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B. To Recall Setting from Memory

⚠ IMPORTANT NOTICE TO USERS

- Do not step on the scale until "0.0kg" with "STA" indication shows on screen.

1. Press **[** ON BMI/BFA **]** key, all digits (Fig.1) and software version (Fig.2) will be shown on LCD successively, then "bMI" will be displayed on LCD (Fig.13). Press **[** ON BMI/BFA **]** key twice and "mem" will be displayed on LCD (Fig.30).

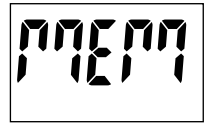

Fig.30

2. Press [↵] to confirm and it will enter into memory recall mode. "M" with last memorised location will blink (Fig.26). Press [▲] or [▼] or numeric keys 0-24 to select memory location. Press [↵] to confirm the memory location.
3. If the memory is empty, "----" will be displayed (Fig.27). Press [▲] or [▼] or numeric keys 0-24 to select another memory location.
4. If the memory is occupied, memorised BMI parameters will be shown on screen (ID No, and height will be toggled on screen). Press [↵] to confirm and "o" will cycle on screen.
5. Follow steps 6-7 in the section of **BMI MEASURING OPERATION.**

ESTIMATING BODY FAT AND TOTAL BODY WATER WITH USER MEMORY

A. **To Store Settings into Memory**

1. Follow steps 1-4 in the section of **BODY FAT AND TOTAL BODY WATER ESTIMATING OPERATION.**
2. Press and hold [⇔] key for 2 seconds to store up all settings, last memorised location will blink with current setting on screen (Fig.31). Press [▲] / [▼] or numeric keys 0-24 to select the memory location. Press [↵] to confirm memory locations. Or press **[CE]** to cancel and select another memory location again.
3. If the memory is empty, "----" with current setting will be shown on screen (Fig.32). Press [↵] to confirm.
4. If the memory is occupied, "uSEd" with current setting will be displayed (Fig.33). Press [↵] to confirm. "CLEAr" with current setting will be displayed (Fig.34). Press [↵], the new settings will be memorised and replace the previous setting.
5. Follow steps 6-8 in the section of **BODY FAT AND TOTAL BODY WATER ESTIMATING OPERATION.**

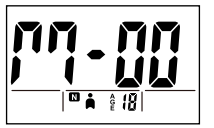

Fig.31

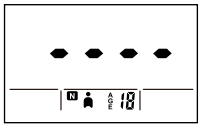

Fig.32

Fig.33

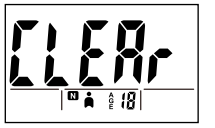

Fig.34

B. To Recall Setting from Memory

⚠ IMPORTANT NOTICE TO USERS

- Do not step on the scale until "0.0kg" with "STA" indication shows on screen.

1. Press **[** ON BMI/BFA **]** key, all digits (Fig.1) and software version (Fig.2) will be shown on LCD successively, then “bMI” will be displayed on LCD (Fig.13). Press **[** ON BMI/BFA **]** key twice and “mem” will be displayed on LCD (Fig.30).
2. Press [↵] to confirm and it will enter into memory recall mode. “M” with last memorised location will blink (Fig.31). Press [▲] or [▼] or numeric keys 0-24 to select memory location. Press [↵] to confirm the memory location.
3. If the memory is empty, “----” will be displayed (Fig.32). Press [▲] or [▼] or numeric keys 0-24 to select another memory location.
4. If the memory is occupied, memorised ID No. and BFA parameters (height, age, gender, normal or athlete selection) will be toggled on screen. Press [↵] to confirm and “o” will cycle on screen.
5. Follow steps 6-8 in the section of **BODY FAT AND TOTAL BODY WATER ESTIMATING OPERATION.**

REPLAY MEASURED DATA FROM MEMORY

⚠ IMPORTANT NOTICE TO USERS

- The screen will show "---.-" if no results or unsuccessful estimation is recorded in the memory.

1. Press [⇔] key, all digits (Fig.1) and software version (Fig.2) will be shown on LCD successively, then “M” with last memorised location will be blinking (Fig.26).
2. Press [▲] or [▼] or numeric key 0-24 to select memory location. Press [↵] to confirm.
3. If the memory location is empty, “----” will display (Fig.27). Press [▲] / [▼] or input numeric key 0-24 to select another memory location.
4. If the memory location is occupied, the ID No. and memorised personal data of BMI parameters (height) or BFA parameters (age, gender, normal/athlete, height) and the last BMI or BFA results will be shown on LCD, sequentially three times. Then it will turn off automatically.

PROBLEM-SOLVING

1. **No weight display?**
   Check if the scale is powered up and started up. If not, please refer to the Section “**PREPARATION BEFORE USE**”.
2. **"bAtt" is displayed on screen.**
   Battery is running low. Replace the battery.

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3. **The message displays “Err 0”….**
   The zero range is too great. Check if the platform is empty. If not, please remove the weight off the platform.
4. **The message displays “Err 2” when measuring?**
   Overload warning. Remove the weight immediately; otherwise, permanent damage to the scale may occur.
5. **Unable to hold weight.**
   Check whether your weight is stable. If not, please wait until “STA” icon is shown on screen, and then press [HOLD] again.
6. **The message displays “Err 3” when estimating body fat and body water values?**
   Contact error. Impedance cannot be measured. Please make sure that you are standing still on the scale and maintain maximum contact between your feet and the metal contacts. Please refer to Section “**Operation**”. You may need to moisten your feet to improve the electrical contact.
7. **The message displays “Err 4” when estimating body fat and body water values?**
   Estimated body fat percentage is beyond the technical limit. Moistening of the feet may help to improve the electrical contact.
8. **The message displays “Err 5” when estimating body fat and body water values?**
   Percentage total body water is out of range. Moistening of the feet may help to improve the electrical contact.
9. **The message displays “Err6”…**
   Machine error. Please contact your supplier.
10. **The message displays “---.-” when replay...**
    Unsuccessful BMI or BFA operation. Follow related BMI measuring or BFA estimating operation to complete your measurement.
11. **The message displays “uStb” when measuring?**
    Unstable zero. Step off the scale, then step on the scale again.
12. **After following corrective actions the problem still occurs.**
    If problem persists after following the corrective actions, disconnect the power supply and reconnect after 1 minute.
13. **The message displays “Adc”?**
    Machine error. Please contact your supplier.
14. **The message displays “EEP”?**
    Machine error. Please contact your supplier.
15. **The message displays “N.A”?**
    Without height rod. Check whether you have installed the height rod or the rod signal cable has connected with RJ11 port. If not, Install height rod according to related session in **Electronic Height Measuring Rod Instruction Manual**.
16. **I have tried all corrective actions, but still can’t solve the problem …**
    Please contact your supplier.

Medical Scale

⚠ CARE AND MAINTENANCE

- Do not disassemble the scale; it contains no user serviceable parts. Damage to the scale may occur as a result of improper handling.
- Remove battery when the scale is not used for a prolonged period of time.
- Clean the scale after use with a lightly dampened cloth. Do not use solvents or immerse the unit in water.
- Avoid excessive impact or vibration to the scale, such as dropping it onto the floor.

PRODUCT SPECIFICATIONS

- Class IIa Medical Device (EC Directive 93/42 EEC)
- Class III OIML compliant
- Class III Non-automatic weighing instruments (EC Directive 2009/23/EC) compliant
- Bioelectrical Impedance Analysis (BIA) technology for body fat and body water percentage, fat mass, fat free mass, bone mass and muscle mass estimation
- Simple weighing function
- Height measuring function (available on model equipped with electronic height rod)
- Athlete (for age 18 or above) or Normal mode selection
- Estimation mode selection
- Body fat and body water level indicator
- BMI calculation
- 15-button operation
- 25-user memories for input personal data (ID No., height in BMI mode; ID No., age, gender, normal / athlete selection, height in BFA mode) and measured data (height, weight, BMI in BMI mode; height, weight, body fat percentage, fat mass, fat free mass, body water percentage, bone mass, muscle mass in BFA mode)
- Recall of last measured data – automatically memorises last measurement
- Zero function
- Tare function
- Hold function
- Auto off function
- Low battery indicator
- Power saving LCD readout, 29mm (1.2”) digit
- Available with or without height rod
- Level indicator and adjustable feet
- RJ11 input for height measuring rod
- Multi-functional desk top and wall mount bracket
- With AC/DC Jack input (adaptor included)
- Capacity: 220 kg
- Graduation: 0.1kg
- Body fat and body water graduation: 0.1%
- Fat mass and fat free mass graduation: 0.1kg

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- Muscle mass and bone mass graduation: 0.1kg
- Age range from 10 to 99 years
- Height range: 110 to 200cm (for height rod measurement); 100 to 220cm (for manual input)
- Height graduation: 0.1cm
- Body fat range: 4 to 50%
- Operates through 6 pieces AA alkaline batteries (included) or 1 piece 9V [100mA] AC/DC adaptor (adaptor included)
- Product dimensions: 392x310x95mm (Base), 200x122x138mm (Indicator) (Approx.)
- Outer packaging dimensions: 394x160x494mm(Approx.)
- Product weight: 7.1kg(Approx)
- Total weight (product & packaging): 8.3kg(Approx.)
- Accuracy of weight measurement: ±0.05kg(1-50kg), ±0.1kg(50-200kg), ±0.15kg(200-220kg)
- Output power for Body Fat Analyzer: < 300uA

EDUCATION INFORMATION

IMPORTANT INFORMATION TO KNOW BEFORE USING YOUR BODY FAT SCALE

Before using the scale, you should know ...

1. Why is it important to monitor percentage body fat (%BF)?

The absolute weight traditionally determines whether or not a person is obese. Weight change in itself does not indicate whether it was the weight of body fat or muscle that had changed. In weight management, it is desirable that muscle mass be maintained while body fat is lost. Thus, monitoring the percentage fat of the body is an important step toward successful weight management and body health.

The optimal %BF of an individual varies according to age and gender.
The table as follows may be used as a guide:

Standard for Men
(Source: University of Illinois Medical Center, Chicago, USA)

Rating	Age				
	20-29	30-39	40-49	50-59	60+
Low	＜13	＜14	＜16	＜17	＜18
Optimal	14-20	15-21	17-23	18-24	19-25
Moderate	21-23	22-24	24-26	25-27	26-28
High	＞23	＞24	＞26	＞27	＞28

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Standard for Women
(Source: University of Illinois Medical Center, Chicago, USA)

Rating	Age				
	20-29	30-39	40-49	50-59	60+
Low	＜19	＜20	＜21	＜22	＜23
Optimal	20-28	21-29	22-30	23-31	24-32
Moderate	29-31	30-32	31-33	32-33	33-35
High	＞31	＞32	＞33	＞34	＞35

2. How is percentage body fat (%BF) estimated?

%BF is measured by a method called Bioelectrical Impedance Analysis (BIA). The use of BIA to estimate body fat has been pioneered since the seventies.

With the BIA technology, a low intensity electrical signal is sent through the body. The signal is very low and causes no bodily harm. Depending on the amount of body fat of the individual, the electrical signal will flow with a different degree of difficulty. The difficulty with which a signal flows through the body is called electrical impedance. Hence, by measuring the electrical impedance and applying to the data a proprietary algorithm, %BF can be estimated.

Please be reminded that the %BF estimated with the scale represents only a good approximation of your actual body fat. There exist clinical methods of estimating body fat that can be ordered by your physician.

3. Why is it important to monitor percentage Total Body Water (%TBW) in the body?

Water is an essential component of the body and its level is one of the health-indicators. Water makes up approximately between 50-70% of the body's weight. It is present proportionally more in lean tissue compared to fat tissue. Water is a medium for biochemical reactions that regulate body functions. Waste products are carried in water from cells for excretion in urine and sweat. Water provides form to cells; helps to maintain body temperature; provides moisture to skin and mucosa; cushions vital organs; lubricates joints and is a component of many body fluids. The amount of water in the body fluctuates with the hydration level of the body and state of health. Monitoring the level of body water can be a useful tool for one's health maintenance. Similar to body fat estimation, the %TBW function provided in this scale is based on BIA.

The estimated %TBW may vary according to your hydration level, that is, how much water you have drunk or how much you have sweated immediately prior to the estimation. For better accuracy, avoid fluctuation in hydration level prior to the estimation. The accuracy of the scale in estimating TBW will also decrease with individuals suffering from diseases that tend to accumulate water in the body.

Medical Scale

The optimal %TBW of an individual varies according to age and gender.
The table as follows may be used as a guide:

(Source: University of Illinois Medical Center, Chicago, USA)

	%BF Range	Optimal % TBW Range
Men	4 to 14%	70 to 63%
	15 to 21%	63 to 57%
	22 to 24%	57 to 55%
	25% and over	55 to 37%
Women	4 to 20%	70 to 58%
	21 to 29%	58 to 52%
	30 to 32%	52 to 49%
	33% and over	49 to 37%

Please be reminded that the %TBW estimated with the scale represents only a good approximation of your TBW. There exist clinical methods of estimating total body water that can be ordered by your physician.

4. When should I use the scale' s body fat and total body water functions?

For maximum accuracy and repeatability, it is recommended that the scale's body fat and total body water functions be used at approximately the same time of the day, e.g. before breakfast in the morning. It is also a good practice to avoid swings in hydration level of the body prior to the estimation. Establishing your own baseline value of %BF and %TBW and track their changes is better than merely comparing your %BF and %TBW value to the population's "normal" value.

5. Why is the Athlete Mode necessary in a Body Fat Analyzer?

It has been found that body fat estimation using BIA could overestimate the percentage body fat of adult elite athletes. The physiological variation of athletes in bone density and level of hydration are two of the reasons said to account for the difference. The Athlete mode is selectable only for adults of 18 years of age or older.

6. Definition of an Athlete

The general consensus among researchers is that a quantitative dimension could be used in defining an athlete. For example, an athlete could be defined as a person who consistently trains a minimum of three times per week for two hours each time, in order to improve specific skills required in the performance of their specific sport and/or activity.

7. What is Muscle Mass?

Our Body Fat Scale estimates the weight of Skeletal Muscle Mass in your body.
You've got around 650 muscles in your body, and they make up roughly half of your bodyweight. These muscles can be divided **into three different groups: skeletal, smooth and cardiac**. All of these muscles can stretch and contract, but they perform very different functions.

Skeletal muscle: Produces movement, maintains posture, stabilizes joints and generates heat
Smooth muscle: Found in the walls of hollow organs
Cardiac muscle: Exists only in your heart
Skeletal muscle
The tissue most commonly thought of as muscle is skeletal muscle. Skeletal muscles cover your skeleton, giving your body its shape. They are attached to your skeleton by strong, springy tendons or are directly connected to rough patches of bone. Skeletal muscles are under voluntary control, which means you consciously control what they do.
Just about all body movement, from walking to nodding your head, is caused by skeletal muscle contraction. Your skeletal muscles function almost continuously to maintain your posture, making one tiny adjustment after another to keep your body upright. Skeletal muscle is also important for holding your bones in the correct position and prevents your joints from dislocating. Some skeletal muscles in your face are directly attached to your skin. The slightest contraction of one of these muscles changes your facial expression.

Skeletal muscle generates heat as a by-product of muscle activity. This heat is vital for maintaining your normal body temperature.

Skeletal muscle represents approximately 30% of body weight of a healthy 58 kg woman or 40% of a 70 kg man. (International Commission on Radiological Protection, 1975)

8. What is Bone Mass?
Our Body Fat Scale estimates the weight of non-living bone mineral content. This is important for monitoring and maintaining healthy bones through exercise and calcium-rich diet.
An adult skeleton is made up of 206 bones, which come in several different shapes and sizes and have specific structure.
Your bones contain blood vessels, nerve cells and living bone cells known as osteocytes. These are held together by a framework of hard, non-living material containing calcium and phosphorous. A thin membrane called the periosteum covers the surface of your bones.
Bone Mineral Content differs according to age and sex.
For Adults: The average bone mineral content of 15-29 year old female is approximately 2.7 kg, that for 15-29 year old male is approximately between 2.7 and 3.5 kg. (Rico et al. 1993)
For Children: The average bone mineral content of 8-16 year old child is approximately between 0.8 and 2.2 kg. (Faulkner et al. 1993)

9. What is Fat Mass?
Fat Mass is the total weight of fat mass in the body.

10. What is Fat-free Mass?
Our Body Fat Scale estimates the weight of fat-free mass in your body.
Fat-free mass is comprised of the nonfat components of the human body. Skeletal muscle, bone and water are all examples of fat-free mass. Fat-free mass can refer to any body tissue that does not contain fat.

Medical Scale

11. What is Body Mass Index (BMI)?
BMI is a ratio of a person's weight to height. BMI is commonly used to classify weight as "healthy" or "unhealthy".

European version (BMI for adult 19-99 of age):

BMI	Classification
30 and over	Obese
25 -29.9	Overweight
18.5 – 24.9	Normal
Under 18.5	Underweight

QUALITY INFORMATION
Marsden Weighing Group have been assessed and registered by SGS Limited (UKAS Accredited Notified Body No. 0120) against the provisions of: ISO 9001:2008
Directive 2009/23/EEC, Annex II.2, to undertake EC Declaration of Type Conformity.

M.D.D. Marsden manufactured products conform to the requirements of Class I (low risk) products as outlined in the MDD and EN 60601-1.

MARSDEN WARRANTY POLICY
A two-year warranty from date of delivery applies to defects attributable to poor materials or workmanship. All moveable parts - batteries,cables, mains units, rechargeable batteries etc.- are excluded.

Defects which come under warranty will be made good for the customer at no charge on production of the receipt. No further claims can be entertained.

The costs of transport in both directions will be borne by the customer should the equipment be located anywhere other than the customer's premises.

In the event of transport damage, claims under warranty can be honoured only if the complete original packaging was used for any transport and the scale secured and attached in that packaging just as it was when originally packed.

A claim under warranty will not be honoured if the equipment is opened by persons not expressly authorised by Marsden to do so.

We would ask our customers abroad to contact their local sales agent in the event of a warranty matter.

CALIBRATION INFORMATION
It is recommended that all medical scales are checked for calibration annually as a

minimum by a suitably qualified organisation.

Marsden Weighing Group offer service and calibration contracts nationwide.

CLEANING
Scale surfaces may be cleaned/disinfected using standard hospital products used for such purposes.

A solution of 1% sodium hypochlorite is suitable.

TRAINING POLICY
User training for our products is available.

For information please phone Freefone **0800 169 2775** and ask for Product Training.

PRODUCT SUPPORT
We offer unlimited free telephone product support. For information on any of our scales phone Freefone **0800 169 2775** and ask for Product Support.

PRICE / PRODUCT INFORMATION
Prices are shown without VAT.
Stamping fees for approved models are included (unless otherwise stated).
Specification may alter due to a policy of continued product development.

RETURNS POLICY
Scales returned due to Marsden error - no charge.

Order placed is incorrect and subsequent replacement scale is ordered - 10% charge.

Order placed is incorrect, scale refused on delivery and replacement model is not ordered - 20% charge.

REGISTRATION NUMBERS
WEEE registration number: WEE/DE007102

NPWD registration number: NPWD 231048

Medical Scale